

NOTES ON A COLLECTION OF HELICOID LAND SHELLS FROM
JAPAN AND THE LOO-CHOO ISLANDS, WITH DESCRIPTIONS
OF TWO NEW SPECIES OF HELICIDÆ.

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PLATE II.

THE writer has recently received two somewhat extensive collections of Helicidæ from Japan and the Loo-Choo Islands. Several species are represented by rather large series, thus enabling some idea to be formed of the amount of variation to which they are severally liable. Some of the forms are fairly constant, as, for instance, *Ganesella myomphala*, *G. papilliformis*, *Eulota* (s.s.) *despecta*, *E. (Plectotropis) elegantissima*, and *E. (Euhadra) mercatoria*; others, however, exhibit a very wide range of variation. This is especially the case with *E. (Euhadra) Luhwana* and *E. (Euhadra) peliomphala*.

Dr. Kobelt worked out the Japanese Mollusca from ample material, but this was twenty years ago, and many new forms have come to light since. Moreover, we now have, thanks to Mr. Pilsbry's valuable work on the Helicidæ, a more correct view of the classification of these molluscs; hence it has occurred to me that a classified and annotated list of all the known species might be useful to collectors.

Although most of the islands have been fairly explored, it is not unlikely that many new forms still remain to be discovered. The present collections contain two species which do not appear to have been described; and one species, *Plectotropis trochula*, which it would seem has not been met with since it was described by Adams, is here figured for the first time.

The following is an enumeration of the species:—

JAPAN.

1. PYRAMIDULA (GONYODISCUS) PAUPER, Gld. Ten specimens. Saigo, province Ugo. Previously recorded from Tokio and Hakodate.

2. GANESELLA MYOMPHALA, Martens.¹

Fukura, Awaji Island. Two specimens.

Diam. maj. 33, min. 29 mm.; alt. 25 mm.

Tanabe, province Kii. Ten specimens.

Diam. maj. 39, min. 36 mm.; alt. 29 mm.

„ „ 36, „ 31 „ „ 24 „

¹ Mr. Jacobi removes this species from *Eulota (Euhadra)* upon anatomical grounds, and for conchological reasons I agree with him.

A uniform species. In some specimens the space above the peripheral band is of a delicate rosy-brown shade, below it pale yellowish.

3. *GANESELLA PAPILLIFORMIS*, Kob. Pl. II, Figs. 1-3. Gojo, province Yamato. Thirteen specimens. Previously recorded from the interior of Nippon, without precise locality.

Kobelt's type-specimens measure diam. maj. 23, min. 21.5 mm., alt. 27 mm.; and are provided with a narrow reddish peripheral band. My specimens are smaller and bandless, although some do show a hyaline band.

Diam. maj. 17.5, min. 16 mm.; alt. 21.5 mm.

„ „ 15.5, „ 16 „ „ 19 „

4. *GANESELLA JAPONICA*, Pfr. Three specimens. Kioto. My specimens are more elevated in the spire than usual; the maximum altitude mentioned by Kobelt is 16 mm., whereas my largest shell measures 20 mm.

5. *GANESELLA CONOSPIRA*, Pfr. Eight specimens. Kioto. Apparently of wide distribution, but not previously recorded from Kioto.

6. *GANESELLA CONULINA*, Mts. Five specimens. Saigo, province Uzen. Previously only recorded from Tabu-shima Island.

7. *TRISHOPLITA GOODWINI*, Sm. Thirty-two specimens. Kioto. Var. *fusca*, n. var. Ten specimens. Kajima, province Harima. Differs from the type in being of a darker horn-colour, with spire more depressed, whorls more compressed, the last more angulated at the periphery.

8. *EULOTA* (s.s.) *LETA*, Gld. Six specimens. Kiyokawa, province Tajima. Reddish or greenish horn-colour, with two bands or unbanded. Not previously recorded so far south.—Two specimens. Onijima, province Teshiwo, Yezo. Unbanded, one brown, the other greenish, resembling *Natalina Caffra*.

Diam. maj. 25, min. 21 mm.; alt. 20 mm.

„ „ 28.5, „ 24 „ „ 22 „

Twenty specimens. Kiyokawa, province Oshima, Yezo. Variable in colour, from pale horn to dark reddish-brown and greenish horn-colour, banded and unbanded in about equal proportion. Previously recorded from Hakodate and Matsu-maye, Yezo; occurring also in Saghalien Island, north of Japan.

9. *EULOTA* (s.s.) *SIEBOLDIANA*, Pfr. Saigo, province Ugo. Five specimens. Saigo, province Uzen. Twenty specimens. Recorded from many localities, but hitherto not from these. A more fragile and transparent species than *E. ravidata*. The small form only was found. Smallest specimen: diam. maj. 16, min. 14 mm.; alt. 15 mm. Largest specimen: diam. maj. 20, min. 16.5 mm.; alt. 18.5 mm.

10. *EULOTA* (*EULOTELLA*) *SIMILARIS*, Fer. Kioto. Twelve specimens. A variable species, apparently very common and of wide distribution. My shells are mostly unicolorous pale corneous, but three specimens have a reddish peripheral band.

11. *EULOTA* (*PLECTOTROPIS*) *MACKENSII*, Ad. & Rve. Kioto. Five specimens. The characters upon which Schmacker and Böttger base their var. *vulgivaga* are not, in my opinion, of diagnostic value. The relative width of the umbilicus varies in different specimens, as does the elevation of the spire. I have a specimen from Formosa, which is more depressed than the type, while the umbilicus is wider; some of my Kioto specimens have the last whorl deflexed in front, in others it is straight. If the Japanese forms are to be separated from the Loo-Choo shells, as seems advisable, it would be more appropriate to designate the former var. *minor*. The extreme measurements of my specimens are: diam. maj. 21, min. 19 mm., alt. 10 mm.; and diam. maj. 26, min. 23·5 mm., alt. 13·5 mm.

12. *EULOTA* (*PLECTOTROPIS*) *TROCHULA*, A. Ad. Pl. II, Figs. 11-13.

Izuhara, Tsu-shima Island. Ten specimens.

I refer my specimens to this species, although similar shells in the British Museum are labelled *setocincta*. These, however, are not Adams' types, and I doubt the correctness of the identification, since Adams, in his diagnosis of the latter, mentions "peristomate recto, acuto," whereas *E. trochula* is described "peristomate acuto, expanso, breviter reflexo." The former is also more depressed. The species has never been figured, and I am therefore pleased to have the opportunity of giving a figure. Adams' specimens were also obtained from Tsu-shima Island. The specimens vary in colour from pale corneous to rufous, lip white or pink.

Diam. maj. 15, min. 13 mm.; alt. 9 mm.

„ „ 14, „ 12·5 „ „ 8 „

13. *EULOTA* (*PLECTOTROPIS*) *HIRASEI*, n.sp. Pl. II, Figs. 4-7.

Shell widely and deeply umbilicated, conical, very finely striated; from dull yellowish to greenish corneous, with a thin cuticle, which is provided with rows of fine short scales, coincident with the lines of growth. Spire conoidal, suture impressed. Whorls 6-6½, very closely coiled, and increasing slowly, a little convex above and somewhat flattened below; the last descending abruptly and very deeply in front, gibbous behind the peristome. Aperture sub-horizontal, subtriangular-obovate; peristome scarcely thickened, the margins convergent, the upper at first straight, then inflected, the outer and lower expanded and reflected, the columellar margin a little reflected towards the wide perspective umbilicus. Diam. maj. 6, min. 5·75 mm.; alt. 3·5 mm.

Hab.—Kioto. Type in my collection.

This interesting new species is intermediate between *E. meniscolepis*, Böttger, an undescribed species, and *E. Patungana*, Gredl., both from China; but the umbilicus is narrower and the spire is more elevated than in either of these, while the aperture is quite different. Named in honour of the Japanese gentleman who collected my shells.

14. *EULOTA* (*ÆGISTA*) *KOBENSIS*, Schm. & Bttgr. Senzan, Awaji Island. Two specimens. Hitherto only recorded from Kobe, which is opposite Awaji Island.

15. *EULOTA* (*ÆGISTA*) *FRIEDELIANA*, Mts. Hirado, Hirado Island. Forty specimens. Hitherto only recorded from Nagasaki.

16. *EULOTA* (*ÆGISTA*) *AWAJIENSIS*, n.sp. Pl. II, Figs. 8-10.

Shell widely and deeply umbilicated, conoid, depressed, finely striated, dark horn-coloured; spire conical, apex prominent, suture impressed. Whorls 6, slowly increasing, a little convex; the body-whorl rather flattened above, rounded below, bluntly keeled, very shortly deflected in front. Aperture oblique, ovate; peristome strongly thickened, shortly reflected, shining, white, the margins approaching and united by a thin callus; columellar margin sub-vertical. Umbilicus wide, perspective. Diam. maj. 13.5, min. 12 mm.; alt. 8 mm.

Hab.—Fukura, Awaji Island.

This new species I took at first to be a variety of the preceding; but it presents specific differences, and it will be noted that the habitats of the two forms are widely apart. *E. Awajiensis* may be distinguished from its ally by its darker colour, more elevated spire, and narrower umbilicus; and, although a smaller shell, it possesses half a whorl more; the whorls widen more slowly, the last being but little wider than the penultimate, whereas in *E. Friedeliana* it is nearly twice as wide. The body-whorl in *E. Awajiensis* is more compressed and distinctly keeled; and while *E. Friedeliana* is spirally wrinkled, the new species is without sculpture and devoid of the short bristles which characterize the former. The peristome is more thickened in the latter, which resembles in this respect *E. Kobensis*; it is, in fact, intermediate between that species and *E. Friedeliana*; but the umbilicus of *E. Kobensis* is wider than that of the other two. Five specimens were received.

17. *EULOTA* (*EUHADRA*) *SENCKENBERGIANA*, Kob., var. (Kobelt: Fauna Japon., pl. iii, figs. 8, 9.) Takeya, province Idzumo. Twenty-six specimens. Hagi, province Nagato. One specimen. The typical form of this fine species appears to be rare, the only specimens I have seen being the types in the Senckenberg Museum, Frankfort. Although *E. Senckenbergiana* is, perhaps, only one of the numerous manifestations of that protean assemblage of forms usually classed together under the designation of *E. Luhuana*, for convenience it may be retained as a distinct group. The variety now under consideration may be distinguished from the other members of the *E. Luhuana* group by the deeper umbilicus, which is less excentric, and shows the earlier whorls more distinctly. The whorls are more inflated, the shell is more conical and much coarser in texture, resembling in appearance the Californian species of *Epiphragmophora* to a remarkable degree. Several specimens show distinct traces of the two wide, diffused bands near the mouth, one above and one below the peripheral band. The inside of the umbilicus is dark in all my Takeya specimens.

Diam. maj. 36, min. 31 mm.; alt. 25 mm.

„ „ 41, „ 35.5 „ „ 28 „

The single specimen from Hagi is unicolorous chocolate brown, and measures: diam. maj. 38, min. 33 mm.; alt. 26 mm.

18. EULOTA (EUHADRA) LUHUANA, Sby.

Hirado. Five specimens.

Diam. maj. 43, min. 37 mm.; alt. 26 mm.

,, ,, 36.5, ,, 32 ,, ,, 23.5 ,,

Kioto. Six specimens.

Diam. maj. 38, min. 32.5 mm.; alt. 25 mm.

,, ,, 36, ,, 30 ,, ,, 20 ,,

Tanabe, province Kii. Ten specimens.

Diam. maj. 37, min. 32 mm.; alt. 23 mm.

,, ,, 32, ,, 27 ,, ,, 19.5 ,,

The typical *E. Luhuana* is more depressed than the previous species, but it is less conical than most of the forms of *E. peliomphala*, from which it may be readily separated, moreover, by the duller and coarser periostracum, while the shells are also generally larger. The Hirado specimens are all pale corneous: one has a dark-brown peripheral band and a dark umbilicus; a second specimen has, in addition to the peripheral band, a lighter one below and a trace of a third above; two other specimens have three distinct pale bands, while the fifth specimen has no bands. With the exception of the first, they are all without the dark patch in the umbilicus. All the Kioto specimens have the dark umbilical patch, and one dark peripheral band. The Tanabe specimens are all bandless, and, with one exception, all have the dark umbilical patch.

19. EULOTA (EUHADRA) PELIOMPHALA, Pfr. The only character which appears of diagnostic value, so far as I am able to judge, is that, whereas in *E. Luhuana* the periostracum is rough and dull, in *E. peliomphala* it is smooth and more or less shining. The shells of the latter are besides generally smaller, and the body-whorl is usually more compressed. As regards shape, depression of spire, and colour, this group presents a wide range of variation. In colour the individuals vary from creamy white to dark brown. The bands also vary; for convenience the band formulæ which we apply to *Helix nemoralis* and *H. hortensis* may be used, the dark umbilical patch, which frequently transgresses the angulation, representing the fifth band. One specimen has the first and second bands confluent, and the third separated from the fourth, which is broad, by a rather wide space. The most common formula in typical *E. peliomphala* appears to be 02345. Of the var. *congener* 50 per cent. have the formula 00345; 25 per cent. 00305; 6 per cent. 00045; 6 per cent. 00005; while 10 per cent. are bandless.

A. Typical *E. peliomphala* (Fér. Hist., pl. lxxviii, figs. 5, 6). Creamy white, with uninterrupted dark-brown bands, lip white.

Nushima, Awaji Island. Three specimens.

Diam. maj. 37, min. 32 mm.; alt. 25 mm.

,, ,, 31, ,, 26 ,, ,, 21 ,,

Gomei, province Kai. One specimen.

Diam. maj. 27, min. 23 mm.; alt. 17 mm.

B. Form connecting the type with var. *congener*. The shell is smaller, and has a brown streak behind the peristome; lip tinged with brown. All possess the dark-brown supra-peripheral band and a narrow or wide umbilical patch; one specimen has an additional broad band (fourth); the others show near the lip, next to the umbilical patch, a short broad zone of pale brown, which I take to be the fourth band diffused. One other specimen has a very narrow band under the suture.

Ushirogawa, Tosa Island. Six specimens.

Diam. maj. 32, min. 27 mm.; alt. 20 mm.
 ,, ,, 27.5, ,, 22.5 ,, ,, 18 ,,

C. Form connecting the type with var. *nimbosa*. Band formula 00345; bands slightly interrupted by transverse creamy streaks. Gomei, province Kai. Four specimens.

Diam. maj. 28, min. 23.5 mm.; alt. 18 mm.
 Fukura, Awaji Island. One specimen.
 Diam. maj. 28, min. 24 mm.; alt. 19 mm.

D. Form *E. Hickonis*, Kobelt (Fauna Japon., pl. iv, figs. 6-9). Differs from the type, which it approaches in shape and contour, by the last whorl descending more deeply, the aperture consequently being more oblique; the umbilicus is much narrower, perspective.

Kioto. One specimen.
 Diam. maj. 36, min. 30.5 mm.; alt. 26 mm.
 Unicolorous pale creamy-yellow, the earlier three or four whorls darker; lips tinged with pale rosy-violet.
 Nushima, Awaji Island. One specimen.
 Diam. maj. 34, min. 29 mm.; alt. 24 mm.

E. Var. *congener*, Smith (Proc. Zool. Soc., 1878, pp. 105, 106). This variety is distinguishable by its pale creamy-white colour, tinged with pink, especially behind the peristome; lip rose, bands when present blackish brown, continuous, varying in breadth.

Kioto. Ten specimens.
 Diam. maj. 35, min. 29.5 mm.; alt. 23 mm.
 Nushima, Awaji Island. One specimen.
 Diam. maj. 28.5, min. 23.5 mm.; alt. 20 mm.

F. Var. *Amaliae*, Kobelt (Fauna Japon., pl. iv, figs. 17, 18). Resembling var. *congener*, but more conoidal, aperture less compressed laterally; banded with brown, but not tinged with pink, lip white. Not collected by Mr. Hirase, but I possess three specimens, without precise locality. I have thought it useful to refer to this variety here, because it has been confused with *E. callizona*.

Diam. maj. 25, min. 22 mm.; alt. 19 mm.
 ,, ,, 23, ,, 19.5 ,, ,, 17.5 ,,
 ,, ,, 21, ,, 18.5 ,, ,, 18 ,,

G. Var. *nimbosa*, Crosse. This can only be retained as a colour variety, for the examination of a series shows that it passes through many forms. The dark bands, when present, are more or less interrupted by creamy blotches and transverse streaks.

1. Gomei, province Kai. Five specimens.
Diam maj. 37, min. 31 mm. ; alt. 23.5 mm.
Nakai, province Shimosa. One specimen.
Diam. maj. 31, min. 26 mm. ; alt. 18.5 mm.
A large form, depressed, greenish yellow with blackish bands ; lip violet brown.
2. Saita, Sanuki, Tosa Island. Three specimens.
Diam. maj. 30, min. 26 mm. ; alt. 19.5 mm.
Pale creamy-yellow ; band formula 003₄5.
3. Same habitat as preceding. One specimen.
Diam. maj. 29, min. 25 mm. ; alt. 18 mm.
Reddish brown ; band formula 00305.
Inga, province Hoki. One specimen. Pale fuscous, transversely streaked with darker brown ; band formula 00305.
Ushirogawa, Tosa Island. One specimen.
Inga, province Hoki. One specimen. Like the preceding, but unbanded ; near the mouth traces of diffused bands are visible.
4. Inga, province Hoki. One specimen. Albino ; lip tinged with brownish violet.
Diam. maj. 34, min. 28 mm. ; alt. 18.5 mm.
5. Fukura, Awaji Island. Ten specimens. More conical than the other forms ; umbilicus narrower, more covered ; lip whitish, tinged with brown. The commonest band formula is 02345 ; one specimen 00305, another 00300.
Diam. maj. 26, min. 22.5 mm. ; alt. 20 mm.
" " 29, " 25 " " 22 "
" " 30, " 26.5 " " 21 "
6. Fukura, Awaji Island. Two specimens. Albino, difficult to separate from var. *Nipponensis*.

H. Var. *Nipponensis*, Kobelt. Unicolorous yellow ; umbilicus narrow ; columellar margin of the peristome forming an angle with the basal margin ; lip rosy violet ; brownish streak behind the peristome. One specimen shows traces of interrupted bands.

1. Ushirogawa, Tosa Island. Five specimens.
Diam. maj. 32, min. 27.5 mm. ; alt. 20 mm.
" " 25, " 21.5 " " 18 "
Inga, province Hoki. One specimen.
Diam maj. 26.5, min. 22.5 mm. ; alt. 17 mm.
2. Hagi, province Nagato. Five specimens. Corneous, showing distinct traces of bands.
Diam. maj. 29, min. 24 mm. ; alt. 19 mm.
" " 26.5, " 22 " " 16 "

3. Nushima, Awaji Island. Two specimens. More solid than the last, larger and darker, with a narrow brown peripheral band.

Diam. maj. 35, min. 29 mm.; alt. 23 mm.

„ „ 33, „ 27.5 „ „ 21 „

20. *EULOTA* (*EUHADRA*) *CALLIZONA*, Crosse. This species has been misunderstood by most authors. Pilsbry, following Von Martens, considered it synonymous with *E. peliomphala*, var. *Amaliæ*. Kobelt, while copying Crosse's figure of the small form, figured the large form as *Amaliæ*. *E. callizona*, however, is quite distinct from all forms of *E. peliomphala*, and I have no hesitation in according it specific rank. The shell is globose turbinate; the base always more inflated than in *E. peliomphala*; while the umbilicus is very deep and narrow, and is half covered by the columellar margin of the peristome.

- A. Large form. (Kobelt, Fauna Japon., pl. iv, fig. 16, as *Amaliæ*.) Inga, province Hoki. Six specimens.

Diam. maj. 33, min. 27.5 mm.; alt. 30.5 mm.

Takeya, province Idzumo. Ten specimens.

Diam. maj. 34, min. 29 mm.; alt. 28 mm.

„ „ 26.5, „ 22.5 „ „ 22 „

Pale creamy, banded with blackish brown, with a pink streak behind the peristome, and a very narrow subsutural band, with or without a narrow peripheral band; a very broad basal zone extends to the inside of the umbilicus.

Hagi, province Nagato. Two specimens.

Diam. maj. 27, min. 24 mm.; alt. 25 mm.

No peripheral or subsutural band, with a dark basal zone, but not extending into the umbilicus.

- B. Var. *minor*. (Kobelt, Fauna Japon., pl. iv, fig. 21, as *Amaliæ*; and pl. v, fig. 9.)

Hagi, province Nagato. Twenty-four specimens.

Diam. maj. 25.5, min. 22 mm.; alt. 21.5 mm.

„ „ 24, „ 22 „ „ 22 „

„ „ 22, „ 19 „ „ 20 „

„ „ 22, „ 18.5 „ „ 19 „

Without subsutural band; with a narrow or broad basal band; umbilicus uncoloured. Some specimens have a narrow pale rosy peripheral band; others have the dark basal band bordered by a very pale rosy broad band, which runs for a short distance from the peristome, and then becomes gradually suffused.

21. *EULOTA* (*EUHADRA*) *QUESITA*, Desh. Tajira, province Teshiwo, Island Yezo. Four specimens. Two specimens straw-yellow, with one dark peripheral band, a lighter diffused band below it, and a dark umbilical patch. The third specimen is unicolorous greenish yellow; the fourth darker corneous, bandless, but with an umbilical patch.

Var. *Perryi*, Jay. Same habitat. Two specimens.

22. *EULOTA* (*EUHADRA*) *BLAKEANA*, Newc. Pl. II, Figs. 18-20.

Yadonobe, province Oshima, Yezo Island. Five specimens.

Diam. maj. 25·5, min. 22 mm.; alt. 16·5 mm.

„ „ 24·5, „ 21 „ „ 15·5 „

Two specimens are unicolorous pale creamy-yellow; three have two narrow brown bands, one above and the other below the periphery.

LOO-CHOO ISLANDS.

23. *EULOTA* (s.s.) *DESPECTA*, Gray. Twenty specimens. Fairly uniform. Most specimens are of pale straw-yellow. Two are pale fuscous.

Diam. maj. 24, min. 19 mm.; alt. 20 mm.

„ „ 18, „ 15 „ „ 15 „

24. *EULOTA* (*PLECTOTROPIS*) *ELEGANTISSIMA*, Pfr. Pl. II, Figs. 15-17. Twenty specimens. My specimens are smaller than Pfeiffer's types, which measure 24 mm. in diameter. In some specimens the peripheral fringe of hairs is of a golden brown.

Diam. maj. 20, min. 17 mm.; alt. 7·5 mm.

„ „ 16, „ 14 „ „ 7 „

25. *EULOTA* (*PLECTOTROPIS*) *MACKENSII*, Ad. & Rve. Yaeyama (= Okinawa). One specimen. Pale corneous. Diam. maj. 38, min. 34 mm.; alt. 18·5 mm.

26. *EULOTA* (*ÆGISTA*) *VERMIS*, Rve. Yaeyama. One specimen. Diam. maj. 29·5, min. 26 mm.; alt. 13 mm. A depressed form. Two specimens collected by Mr. F. Stearns in the same island measure—

Diam. maj. 30, min. 26·5 mm.; alt. 14·5 mm.

„ „ 28, „ 24·5 „ „ 10 „

Hitherto only recorded from Madjicosisima.

27. *EULOTA* (*EUHADRA*) *CONNIVENS*, Pfr. Twenty specimens. Rather variable in shape, depression of spire, and width of umbilicus. Sixteen specimens have a narrow brown peripheral band, while the other four are unbanded.

Diam. maj. 23, min. 20·5 mm.; alt. 14·5 mm.

„ „ 22·5, „ 19 „ „ 12·5 „

„ „ 19, „ 16 „ „ 11 „

28. *EULOTA* (*EUHADRA*) *LARGILLIERTI*, Phil. Pl. II, Fig. 14. A single specimen, simply with the general indication of Loo-Choo Islands as habitat. It resembles the specimen figured by Mr. E. A. Smith (Proc. Zool. Soc., 1887, p. 317), but it has a single black peripheral band and a very narrow black band under the suture. The base is suffused with pale tawny-yellow. The shell measures: diam. maj. 25·5, min. 22·5 mm.; alt. 25 mm.

29. *EULOTA* (*EUHADRA*) *MERCATORIA*, Gray. Not a very variable species; the colour ranges from pale yellowish to blackish brown,

and there is a black peripheral band, which, in some specimens, is bordered on both sides by a pale zone; umbilical patch dark brown or black.

Naha. Twenty-three specimens.

Diam. maj. 36, min. 31.5 mm.; alt. 25 mm.

„ „ 30, „ 26 „ „ 20 „

Yaeyama. One specimen.

Diam. maj. 42, min. 36 mm.; alt. 32 mm.

CLASSIFIED LIST.

[Those species marked with an asterisk also occur outside the region named.]

JAPAN.

- HELICARION, Fér.
septentrionalis, Ehrm. Nikko.
depressus, Ehrm. Kobe.
- ARNOULDIA, Bourg. = *Conulus*,
 Fitz., preoccupied.
pupula, Gld.
 = *fulvus*, Mdff., non Müll.
 Hakodate, Vladimir Bay.
pustulina, Reinh. Tokio, Uweno
 and Hakodate, Kioto, Fusi-
 jama.
sinapidium, Reinh. Tokio, Uweno
 and Nikko, Nippon.
phyllophila, Reinh. Mososeki,
 Nippon.
incerta, A. Ad. Tabu-shima.
tenera, A. Ad. Matsamai,
 Mohedsi, Hakodate.
stenogyra, A. Ad. Tsu-shima.
acutangula, A. Ad. Tayo,
 Sikok, Tokio.
ampla, Reinh. Kioto.
obtusangula, Reinh. Nippon.
circumcincta, Reinh. Yokohama.
- VITREA, Fitz.
minura, West. Fusijama.
- CRYSTALLUS, Lowe.
Hilgendorfi, Reinh. Tokio.
microdiscus, Reinh. Tokio.
- ZONITOIDES, Lehm.
nitidus, Müll.*
 = *radiatellus*, Reinh.
- Tsu-shima, Hakodate,
 Yesso, Kino-o-shima.
- POLITA, Held.
Yessoensis, Reinh. Hakodate.
aretispira, West. Murajama.
obtusata, West. Ikao, Takasaki,
 Nippon.
- PSEUDOHYALINIA, Morse.
minuscule, Binn.* Tokio.
- MICROCYSTIS, Beck.
rejecta, Pfr. Tsu-shima, Nippon.
labilis, Gld. Hakodate.
Doenitzii, Reinh. Tokio, Nippon.
- PYRAMIDULA, Fitz.
 (Pyramidula, s s.)
amblygona, Reinh.
lepta, West. Nagasaki.
 (Gonyodiscus, Fitz.)
pauper, Gld.* Tokio, Hakodate;
 Saigo, prov. Ugo.
 = *declivis*, Newe.
 ? *elatis*, Ad. Dagelet Island.
 ? *depressa*, Ad. Vladimir Bay.
- GANESSELLA, Blanf.
myomphala, Mts. Nippon; Naga-
 saki, Oyama, Tokio; Fu-
 kura, Awaji I.; Tanabe,
 prov. Kii; Hirado, prov.
 Hizen; Izuhara, Tsu-
 shima.
 = *Daimio*, A. Ad. (MS.).
Stearnsii, Pils. Kioto.

- papilliformis*, Kob. Nippon ;
Gojo, Yamato.
- Japonica*, Pfr.
= *vitracea*, Fér.
Yokohama, Tokio, Awa-
shima, Tabu - shima,
Matsumai, Ikao, Kuta-
sin, Kioto.
- conospira*, Pfr. Nagas, Tokio,
Uweno, Kano-san, Segu-
chi, Hakone Mountains,
Misaki, Oyama, Eno -
shima, Kobe, Shikoku,
Kioto.
- spherulata*, Reinh. Nippon,
Tokio, Kobe, Shikoku,
Kioto.
- Tabuensis*, Anc.
= *patruelis*, A. Ad., non Ang.
Tabu-shima, Kioto, Mura-
gama, Eno-shima, Kami-
noho, prov. Mino.
- sphinctostoma*, A. Ad. Seguchi,
Kobe, Tago, Ibuki Mt.,
prov. Omi.
- cardiostoma*, A. Ad. Kioto.
- Hilgendorfi*, Kob. Ibuki Mt.,
prov. Omi.
- verrucosa*, Reinh. Uweno, Tokio.
- macrocyloides*, Kob.
- eumenes*, West. Mizu, Kiu-siu.
- conulina*, Mts. Tabu - shima ;
Saigo, prov. Uzen.
= *conulus*, A. Ad. Tabu -
shima ; Saigo, prov.
Uzen.
- Lischkeana*, Kob. Hagi.
- peculiaris*, A. Ad. Tanabe.
- gibbosa*, A. Ad. Tanabe.
- Edithæ*, A. Ad. Island Risiri,
Vladimir Bay.
- commoda*, A. Ad. Mososeki.
? *Collinsoni*, A. Ad. Tago.
? *craspedocheila*, A. Ad. Kino-o-
shima.
? *proba*, A. Ad. Kino-o-shima.
? *concinna*, A. Ad. Tago.
- TRISHOPLITA, Jacobi.
- Goodwini*, Smith. Kobe, Naga-
saki, Kioto.
- var. *fusca*, Gude. Kajima,
prov. Harima.
- pallens*, Ehrm. Kamodamura,
prov. Toza.
- EULOTA, Hartm.
- (Eulota, s.s.)
- despecta*, Gray.* Mososeki.
- lata*, Gld.* Hakodate ;
Saghalien ; Kiyokawa,
prov. Tajima ; Onijima,
prov. Teshiwo ; Yezo ;
Kiyokawa, prov. Oshima.
- oscitans*, Mts.
- plicosa*, Mts.
- serotina*, A. Ad. Saghalien, Cape
Notoro.
- Sieboldiana*, Pfr. Tokio, Naga-
saki, Kiu-siu, Tsu-shima,
Awa - shima, Uweno,
Misaki, Kano-san, Ha-
kone Mountains ; Saigo,
prov. Uzen ; Saigo, prov.
Ugo ; Kioto.
- (Eulotella.)
- similaris*, Fer.*¹ Yokohama,
Nagasaki, Simonosaki,
Tokio, Kioto.
- var. *Stimpsoni*, Pfr.
= *genulabris*, Mts.
Nagus, Hirosami.
- (Cathaica, Mdff.)
- fasciola*, Drap.

¹ Introduced in many parts. Besides Japan, it has been recorded from—Asia : Secusan, Macao, Canton, Hongkong, China, Formosa, Chichishima (Boniu), Cochin-China, Siam, Burma, Penang, Ceylon, Bengal, Singapore, Java, Celebes.—Africa : Ascension, Rodriguez, Mauritius, Seychelles, Bourbon, Mayotte, Nossi-Bé, Natal.—America : Cuba, Bermuda, Barbados, Rio Jaueiro, Buenos Ayres.—Australia : Sydney.—Polynesia : Sandwich Islands. I also have specimens from Madagascar.

- = *pyrrhizona*, Phil. Hako-
date, Olga Bay, Vladimír
Bay.
- (Plectotropis, Mts.)
Mackensii, A. Ad. & Rve.*
= *vulgivaga*, Schm. & Bttgr.
Nippon, Oyama, Buko-
san, Ikao, Kobe, Kioto.
- ciliosa*, Pfr.* Tsu-shima, Awa-
shima, Tabu-shima.
- squarrosa*, Gld. Ou - shima,
Nagasaki, Kino-o-shima,
Tsu-shima. Tsaulian.
- conella*, A. Ad. Tabu-shima.
- scabricula*, A. Ad. Awa-shima.
- Ningpoensis*, Bttgr. Ningpo.
= *Osbeckei*, Bttgr., non Phil.
- setocincta*, A. Ad. Awa-shima.
- trochula*, A. Ad. Izuhara, Tsu-
shima.
- Vatheleti*, Mab. Owari.
- horiomphala*, Pfr.
- Hirasei*, Gude. Kioto.
- (Ægista, Alb.)
Kobensis, Schm. & Bttgr.
Kobe; Senzan, Awaji I.
- Friedeliana*, Mts. Nagasaki ;
Hirado.
- Awajiensis*, Gude. Fukura,
Awaji.
- (Euhadra, Pils.)
Senckenbergiana, Kob. Kanga,
Shikoku ; Takeyo, prov.
Idzumo ; Hagi, prov.
Nagato.
- Luhwana*, Sow.* Dagelet I. ;
Kiu-sin, Migu, Hakone ;
Hirado ; Kioto ; Tanabe,
prov. Kii.
- var. *coa*, Crosse. Yoshi-
naga, prov. Suruga.
- peliomphala*, Pfr. Mososeki,
Tago, Yokohama, Kobe,
Tokio, Eno-shima ; Nu-
shima, Awaji I. ; Gomei,
prov. Kai ; Ushirogawa,
Tosa I. ; Fukura, Awaji I.
- = *Japonica*, Fér.
= *Sieboldi* (de Haan), Beck.
= *Thumbergi*, Beck.
- peliomphala*, var. *congener*,
Smith. Kioto ; Nu-
shima, Awaji I.
- var. *Amaliæ*, Kob. Jasumo.
- var. *Herklotsi*, Mts. Si-
moda, Olga Bay, Vla-
dimír Bay.
- = *Simoda*, Jay. Simoda.
- = *Sandai*, Kob. Kioto.
- var. *nimbosa*, Crosse.
Gomei, prov. Kai ; Nakai,
prov. Shimosa ; Saita,
Ushirogawa, Tosa I. ;
Inga, prov. Hoki ; Fu-
kura, Awaji I.
- = *subnimbosa*, Kob.
- = *maculata*, Pils.
- var. *Brandti*, Kob. Nippon.
- var. *Nipponensis*, Kob.
Nippon ; Inga, prov.
Hoki ; Ushirogawa,
Tosa I. ; Nushima,
Awaji I. ; Hagi, prov.
Nagato.
- = *congenita*, Smith.
- var. *Itikonis*, Kob. Kioto,
Nushima, Awaji I.
- = *conica*, Pils.
- callizona*, Crosse. Inga, prov.
Hoki ; Takeya, prov.
Idzumo ; Hagi, prov.
Nagato.
- var. *minor*. Hagi, prov.
Nagato.
- miranda*, A. Ad. Rifunsiri.
- Lewisii*, Smith.
- Blakeana*, Newe.
= *Blakei*, Newe. Hakodate ;
Yadonobe, prov. Oshima,
Yezo.
- = *textrina*, A. Ad., non Bens.
Tago.
- orientalis*, A. Ad. & Rve. Moso-
seki, Tsu-shima.
- = *Germana*, Rve.
- quæsita*, Desh. Nippon ; Simoda,
Tabu-shima, Sado, Yoko-
hama, Fugedamura ; Ta-
jira, prov. Teshiwo ;
Yezo.

- quasita*, var. *Perryi*, Jay. Tsukuba San, Hakone, Hatta; Tajira, Teshiwo.
 = *montium*, Mts.
seavola, Mts. Hakone; Tadate, prov. Shinano.
- ACANTHINULA, Beck.
harpula, Reinh. Tokio, Kanda.
- sp. aff. *oreula*, Bens. (fide Von Mts.). Tokio, Idzumo.
- VALLONIA, Risso.
tenera, Reinh. Uweno, Tokio.
 ? = *Japonica*, A. Ad. Oshima.
- Species of uncertain affinity:
Ariophanta Japonica, Mdf.

LOO-CHOO ISLANDS.

- ARIOPHANTA. (Ægista.)
Ruschenbergeri, Pils. *circulus*, Pfr.
- EULOTA. (Euhadra.)
 (Eulota, s.s.) *vermis*, Rvc.* Okinawa.
despecta, Gray. Okinawa. *convivus*, Pfr.
 (Eulotella.) — var. *phæogramma*, Anc.
primæana, Crosse. Okinawa. *Luhuana*, Sow.*
 (Plectotropis.) *Largillierti*, Phil. Kinmagiri.
Mackensii, A. Ad. & Rvc.* = *immaculata*, Rvc.
 Okinawa. *submandarina*, Pils.
Obeckei, Phil. Okinawa. *mercatoria*, Gray. Kinmagiri;
elegantissima, Pfr. Naha; Okinawa.
 = *pretiosa*, Alb. *Yacyamensis*, Pils. Yacyama
Fritzei, Bttgr. Okinawa. (= Okinawa).

MADJICOSIMA

(MEIOKO-SHIMA OR NAMBU SHOTO GROUP).

- EULOTA. (Ægista.)
 (Plectotropis.) *Cathearta*, Rvc. Ty-pin-san.
Mackensii, A. Ad. & Rvc.* *vermis*, Rvc.*
 Ty-pin-san (= Miyako). *oculus*, Pfr. Ty-pin-san.
elegantissima, Pfr. Ty-pin-san. = *Typinsana*, Ad. & Rvc.

BONIN ISLANDS.

(OGASAWARA.)

- ARIOPHANTA. EULOTA.
Pallasiana, Pfr. (Mandarina, Pils.)
mandarina, Gray.

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